ABSTRACT OF THE DISCLOSURE

A system and method are disclosed for performing digital multi-channel decoding of a BTSC composite audio signal. Each subsequent stage of the digital multi-channel decoding process is performed at the lowest sampling rate that yields acceptable performance for that stage. Analog-to-digital conversion of the composite audio signal is performed first to generate a composite digital audio signal. After analog-to-digital conversion, all signal processing may be performed in the digital domain. The composite digital audio signal is digitally filtered to frequency compensate for variations caused by previous stages of processing, including IF demodulation. Digital channel demodulation and filtering are performed to isolate single channels of the composite digital audio signal such as SAP, L-R, and L+R channels. SAP and L-R channels are DBX decoded resulting in corresponding decoded signals using a unique combination of digital filters that are an efficient translation of a corresponding combination of analog filters. The decoded L-R channel and the L+R channel are re-matrixed to form left and right stereo signals. Any of the SAP signal, left and right stereo signals, and L+R

channel signal may be sample rate converted and output at a standard audio output rate.